General Facts About Coal

Coal is widely distributed throughout the United States, with 39% occurring in states east of the Mississippi River and 61% in western states and Alaska. Coal underlies 13% of total U.S. land area, encompassing some 458,000 square miles. Measurable quantities are found in 38 states; in 31 of them the coal is considered mineable, and mining operations currently take place in 25 states.

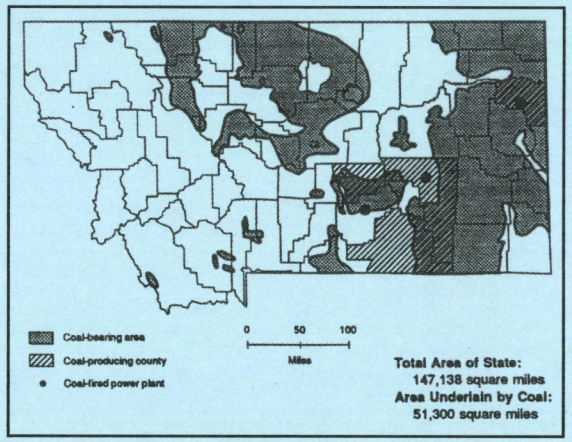
Thick, relatively flat coal beds at depths of less than 200 feet below the surface are particularly suitable for surface mining. Coal beds that dip or lie very deep beneath the surface generally must be extracted through underground mining methods. The Energy Information Administration estimates that about 32% of the total demonstrated reserve base can be mined with surface methods, with 75% of this coal located west of the Mississippi River. Conversely, 54% of the demonstrated reserve base coal requiring underground mining is located in states east of the Mississippi.

Coal in the U.S. is mined from about 400 beds or veins, but approximately 47% of annual production comes from only about 10 beds. Coal beds are generally flat lying, but may be inclined, folded or faulted as a result of geologic forces. Although the thickness of the coal beds mined ranges from less than 2 feet to about 100 feet, most of the mining is in beds 2-8 feet thick. The average thickness of coal beds mined is a little more than 4 feet in the Appalachian states, about 6 feet in the Midwest, and about 30 feet in the West.

State	Reserve Base (Billions of Tons)	Ranked by Reserve Base	2012 Production (Millions of Tons)	Ranked by Production
Montana	118.9	1	36.7	8
Illinois	104.0	2	48.5	5
Wyoming	60.0	3	401.4	1
West Virginia	31.3	4	120.4	2
Kentucky	28.7	5	90.9	3
Pennsylvania	26.7	6	54.7	4
Ohio	23.0	7	26.3	11
Colorado	15.8	8	28.6	9
Texas	12.0	9	44.2	6
New Mexico	11.9	10	22.5	12
Indiana	9.1	11	36.7	7
North Dakota	8.8	12	27.5	10
Alaska	6.1	13	2.1	14
Missouri	6.0	14	.4	15
Utah	5.1	15	17.0	13

Source: U.S. Energy Information Administration

Of the 15 major coal-producing states, Montana ranks first in coal resources and reserves with 119 billion tons. The Energy Information Administration estimates that 1 billion of those tons are presently recoverable reserves. This includes only coal that is mineable from producing coal mines. At the present rate of mining, approximately 40 million tons per year, Montana could sustain over 25 years of mining from presently mineable coal. In terms of the coal reserve base, if it all became mineable, and were mined at the current rate, it would sustain mining for nearly 3,000 years.



Surface Mining and Reclamation

Surface coal mining companies are required to reclaim and return mined land to a productive capacity that is equal to or better than before mining occurred.

The reclamation operation takes place concurrently with the mining operation. The first step taken is to remove the top soil from an area to be mined, stockpile it and stabilize it with temporary vegetation to prevent erosion.

The initial removal of overburden (the remaining material covering the coal) is called a box cut and the cavity that is left when the coal is removed will receive the overburden from the second cut. In most cases, a dragline is used to lift overburden from a new section and deposit it in the section that has just been mined. To loosen the overburden for the dragline, it is blasted. The coal is fractured in the same way and then removed by large loaders, deposited in coal haulers and transported to the mine storage and loading facility.

Once the dragline has deposited overburden over the mined-out cavity, bulldozers smooth it out and contour it to blend with the surrounding landscape. This process is much like that employed in construction projects. After that, reclamation becomes very similar to any farming operation. The soil is scarified to guard against erosion, top soil is replaced and the area is planted with seed mixtures that are prescribed by the regulatory agency. In some cases, ponderosa pine and other woody plants are part of the approved reclamation plan. Companies may apply a fiber mulch to further protect against erosion and while fertilizer may be used during the early growing seasons, irrigation has not been necessary.

Before any company is permitted to mine, it is required to post a bond sufficient to cover the cost of reclamation if an operator fails with his reclamation efforts. That bond is not released until successful reclamation is verified. Based on precipitation rates in the West, the law dictates that, in no case, can the bond be released sooner than ten years from the date of seeding.

Royalties

Unlike a tax paid to government on the production of coal or its realized profits, royalties are a monetary payment to the owner of the coal as agreed upon in the terms of pre-mining leases. State and federal government still are major beneficiaries of these payments, however, because a large percentage of the mineral right ownership of coal in Montana has been retained by the federal government, with payments from the coal producing school sections going to the state. In addition, the 1976 federal leasing law mandates that 50 percent of the royalties collected from development of federal leases be returned to the state. Other coal lessors include Indian tribes and private (or fee) owners.

Best Available Figures for Cumulative Royalty Payments from Montana Surface Mining Operations Through December, 2013

Company	Federal	State	Indian	Private	Total
Signal Peak	23,000			62,119,914	62,142,914
Decker Coal	381,892,646	63,854,511		123,084,047	568,831,204
Spring Creek	309,062,159	60,760,891		23,287,247	393,110,297
Western Energy	299,528,887	5,181,096		186,243,647	490,953,630
Westmoreland Resources		4,617,797	132,915,942	1,112,584	138,646,323
Westmoreland Savage	4,247,418			1,506,109	5,753,527
	$994,754,110	$134,414,295	$132,915,942	$397,353,548	$1,659,437,895

Source: Individual Companies.

Production, Employment and Payroll

Montana's surface mining industry furnishes some of the highest-paying and most-sought-after jobs in the state.

	2013 Coal Production (Million tons)	Number of Employees	Estimated Payroll
Signal Peak Energy	8.68	333	32,728,000
Decker Coal Co.	3.11	100	6,594,000
Spring Creek Coal Co.	17.67	262	24,141,000
Western Energy Co.	8.23	378	40,318,000
Westmoreland Resources	4.17	137	10,532,000
Westmoreland Savage	.35	14	917,000
	42.21	1,224	$115,230,000

Source: Individual Companies & Department of Labor

Production and Value

The following chart shows production for 2004 through 2013. The price per ton at the various sites depends on the quality of coal (heating value, moisture content, sulfur and ash content, etc.) but an average for Fiscal Year 2013 was $12.23 per ton making the value of that coal over $516 million. The price is established by the Department of Revenue after three state and two federal taxes are deducted.

Coal Production

Year	Million Tons
2004	40.1
2005	40.6
2006	41.8
2007	43.2
2008	44.9
2009	39.6
2010	44.7
2011	42.0
2012	36.7
2013	42.2

Source: Department of Labor & Industry, Safety Bureau

PM^{10} Emissions (Respirable-Size Particulates)
Comparison Between
Colstrip Units 1-4 and Montana Wildfire

Wildfire puts out over 1,000 pounds of PM^{10} per acre. In the year 2000, 965,000 acres burned in Montana resulting in 482,000 tons of PM^{10} in the air. Colstrip Units 1-4 emit 255 tons/year of PM^{10}. PM^{10} emitted by wildfires in Montana in the year 2000 is equal to 1,892 years of Colstrip Units 1-4.

Sources: North Elkhorns Environmental Assessment, Helena National Forest, & Montana Department of Environmental Quality

This brochure was prepared by the staff of the Montana Coal Council with the assistance of informational sources quoted. The Montana Coal Council is a trade association whose members are involved in the production of coal in Montana. We support realistic state and national environmental and social standards. The council also recognizes the need for a federal energy policy that will lead to the development of domestic energy sources and reducing this nation's dependence on foreign oil.

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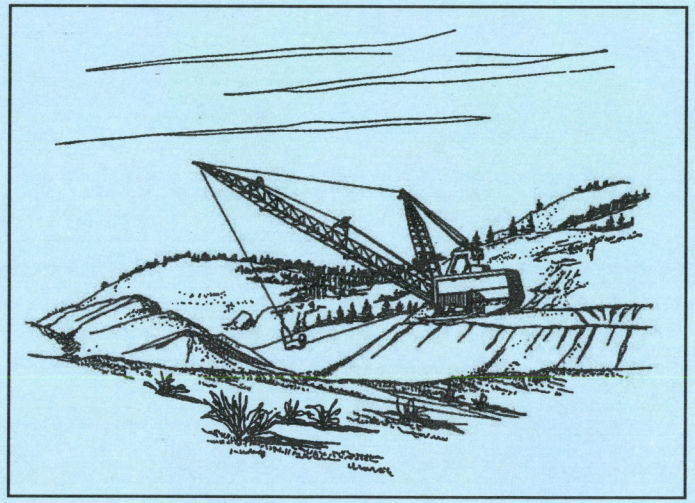
EXHIBIT #2
DATE 3/11/15
SB [redacted]

Montana Coal 2014



Every ton of Montana coal replaces 3 1/2 barrels of foreign oil.

1. **The Severance Tax** - Prior to 1975, Montana's coal severance tax was assessed on a cents-per-ton basis. In 1975 the Legislature enacted the highest severance tax in the nation, based on percentage of the mine-mouth price of the coal. The percentage was tied to the heating quality of the coal - 30 percent for subbituminous and 20 percent for lignite. However, the 1987 Legislature enacted a law to gradually reduce the taxes on coal in 5 percent increments over the next few years if a target tonnage of 32.2 million tons was produced in Fiscal Year 1988. That target was met; and the tax dropped to 25 percent on July 1, 1988; to 20 percent on July 1, 1990; and to 15 percent on July 1, 1991.

FY		
	1975/76	$ 23,965,000
	1976/77	35,906,000
	1977/78	34,372,000
	1978/79	42,689,000
	1979/80	75,125,000
	1980/81	70,415,000
	1981/82	86,187,000
	1982/83	80,045,000
	1983/84	82,823,000
	1984/85	91,749,000
	1985/86	84,217,000
	1986/87	76,547,000
	1987/88	84,638,000
	1988/89	58,566,000
	1989/90	67,871,000
	1990/91	50,458,000
	1991/92	43,434,000
	1992/93	38,181,000
	1993/94	41,200,000
	1994/95	40,416,000
	1995/96	36,261,000
	1996/97	37,740,000
	1997/98	35,045,000
	1998/99	36,768,000
	1999/00	35,470,000
	2000/01	32,337,000
	2001/02	31,614,000
	2002/03	29,424,000
	2003/04	31,545,000
	2004/05	37,635,000
	2005/06	35,822,000
	2006/07	40,759,000
	2007/08	45,332,000
	2008/09	49,564,000
	2009/10	43,825,000
	2010/11	54,971,000
	2011/12	52,743,000
	2012/13	56,574,000
		$1,932,233,000

Earmarked Fund Allocations 1975/76 through 2012/13

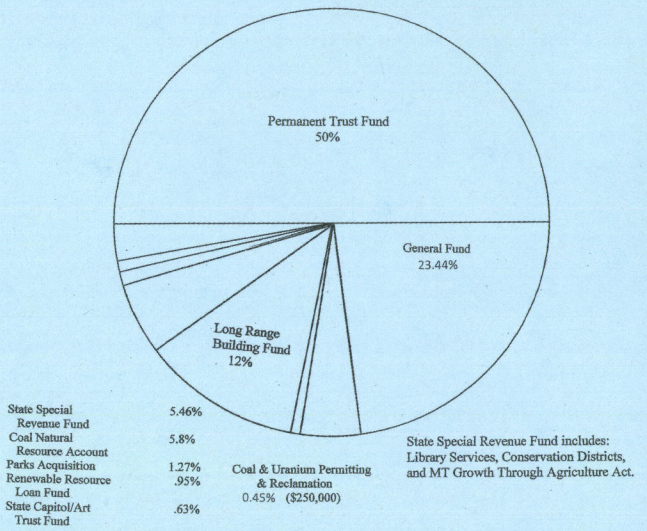
Permanent Coal Trust Fund	$898,695,067	
General Fund	444,609,207	
State Special Revenue Fund*	48,356,921	
Long Range Building Program	86,222,685	
Parks Acquisition Trust	27,778,493	
Arts Council Trust/Cultural & Aesthetic Projects	5,748,080	
Renew. Res.Loan Debt Service	6,725,694	
Coal & Uranium Permitting & Recl.	1,500,000	
Coal Board (Natural & Resource Acct.)	9,528,655	
State Library Commission	4,801,351	
Conservation Districts	1,916,714	
MT Growth Through Agriculture	3,207,594	
Oil, Gas & Coal Nat. Resource Act	7,514,674	(ended in FY 10/11)
Local Impact	90,616,117	(ended in FY 04/05)
Water Development	4,275,441	(ended in FY 04/05)
County Land Planning	6,119,376	(ended in FY 04/05)
Long Range Building Program Debt Service	933,565	(ended in FY 99/00)
Renewable Res. Develop.	11,169,855	(ended in FY 98/99)
Highway Reconstruction Trust	52,731,221	(ended in FY 94/95)
Fish, Wildlife & Parks	1,482,985	(ended in FY 94/95)
State Equalization Aid to Schools	102,574,928	(ended in FY 94/95)
State Parks/Historic Sites	550,165	(ended in FY 91/92)
Education Trust Fund	75,318,623	(ended in FY 89/90)
Alternate Energy Research	18,354,255	(ended in FY 88/89)
Coal Area Highway Improvement	15,117,192	(ended in FY 79/80)
Coal Counties	4,737,441	(ended in FY 79/80)
Acquisition of Sites & Areas	1,647,532	(ended in FY 79/80)
	$1,932,233,831	

* Source: Montana Department of Revenue

The above figures do not include coal severance taxes paid since 1988 by Westmoreland Resources Inc. on coal owned by the Crow Tribe. WRI pays coal severance taxes and gross proceeds taxes directly to the Crow Tribe and not to the state of Montana or the county.

* State Special Revenue Fund includes Library Services, Conservation Districts and MT Growth Through Agriculture Act. Unspent money goes to the General Fund.

MONTANA COAL TAX DISTRIBUTION
Source: 15-35-108, MCA



2. **Net (prior to 1975) and Gross Proceeds Taxes -** These are additional taxes paid on the value of the coal to support county government in the counties where the mines are located. $454,854,391 has been collected by Big Horn, Richland, Musselshell, and Rosebud Counties through FY 2012. The figure for FY 2013 is $19,444,335, bringing the total to date to $474,298,726.

Source: Montana Department of Revenue

3. **Resource Indemnity Trust Tax -** As of 1973, all nonrenewable resource producers have been required to pay this tax which on coal is now 0.4 percent of gross value. The total collections from FY 1974 through FY 2012 were $42,731,556. The FY 2013 figure was $1,758,831 making the total taxes paid $44,490,387.

Source: Montana Department of Revenue

4. **Federal Taxes -** In addition to state taxes, Montana surface mining operations pay a tax for abandoned mine reclamation, mostly abandoned hardrock mines, consisting of 9 cents per ton for lignite or 31.5 cents per ton for all other types of coal.

Also, 4.4 percent of the FOB mine price (less the black lung tax) or 55 cents per ton, whichever is less, is paid to a fund for black lung disease victims, even though this disease is primarily suffered by underground miners.

5. **Property Taxes -** Property taxes paid in 2013 by the coal mines to the counties where the mines are located. Does not include gross proceeds taxes listed above.

Big Horn Co.	
Decker Coal Co.	429,067
Spring Creek Coal Co.	1,181,958
Westmoreland Resources	576,164
Musselshell Co.	
Signal Peak Energy	1,136,110
Richland Co.	
Westmoreland Savage	32,218
Rosebud Co.	
Western Energy Co.	802,897
	$4,158,414

Source: County treasurer

6. **Personal Income Tax -** While it is difficult to determine the amount of personal income tax paid to the state by surface mine employees, we have made a general estimate based on an average gross income of $94,142 per year with two exemptions. Under that formula, the state of Montana would receive more than $6.3 million annually and the actual amount is probably higher. It may be of interest to note that perhaps as many as 50 percent of mine employees who work in Montana and pay its state income tax live in Sheridan County, Wyoming, because it is the closest urban center.

Major Holders of U.S. Coal Reserves-2012
(billion short tons)

Holder	Estimated Reserves
1. U.S. Government	86.0
2. Great Northern Properties Limited Partnership	20.0
3. Peabody Energy Corp.	9.3
4. Arch Coal, Inc.	5.5
5. Alpha Natural Resources	4.6
6. CONSOL Energy Inc.	4.3
7. Natural Resource Partners LP	2.4
8. The North American Coal Corp.	2.3
9. Patriot Coal Corp.	1.8
10. Pocahontas Land Corp. (Norfolk Southern)	1.7
11. Cloud Peak Energy	1.3
12. Kentucky River Properties	1.0
13. Alliance Resource Partners	.9
14 Drummond Company Inc.	.9
15. Penn Virginia Resource Partners	.9

Source: National Mining Association

15 Largest U.S. Surface Coal Mines, 2012
(million short tons)

Mine Name	State Located	2012 Tonnage	Operating Company
1. North Antelope	WY	107.7	Peabody Energy Subsidiary
2. Black Thunder	WY	92.9	Arch Coal
3. Cordero Rojo	WY	39.2	Cloud Peak Energy
4. Antelope	WY	34.3	Cloud Peak Energy
5. Belle Ayr	WY	24.2	Alpha Coal West
6. Eagle Butte	WY	22.5	Alpha Coal West
7. Buckskin	WY	18.0	Buckskin Mining (Kiewit)
8. Spring Creek	MT	17.2	Cloud Peak Energy
9. Caballo	WY	16.8	Peabody Energy Subsidiary
10. Rawhide	WY	14.7	Peabody Energy Subsidiary
11. Freedom	ND	13.0	Coteau Properties
12. Martin Lake	TX	9.9	Luminant Mining
13. El Segundo	NM	8.4	Peabody Energy Subsidiary
14. Rosebud	MT	8.0	Western Energy
15. Kosse	TX	8.0	Luminant Mining

Source: National Mining Association

Uses of Coal

Different types of coal have different uses. Steam coal - also known as thermal coal - is mainly used in power generation. Coking coal - also known as metallurgical coal - is mainly used in steel production. Other important uses of coal include alumina refineries, paper manufacturers, and the chemical and pharmaceutical industries. Several chemical products can be produced from the by-products of coal. Refined coal tar is used in the manufacture of chemicals, such as creosote oil, naphthalene, phenol, and benzene. Ammonia gas recovered from coke ovens is used to manufacture ammonia salts, nitric acid and agricultural fertilizers. Thousands of different products have coal or coal by-products as components: soap, aspirins, solvents, dyes, plastics and fibers, such as rayon and nylon. Coal is also an essential ingredient in the production of specialist products: Activated Carbon is used in filters for water and air purification and in kidney dialysis machines. Carbon Fiber is an extremely strong but light weight reinforcement material used in construction, mountain bikes and tennis rackets. Silicon Metal is used to produce silicones and silanes, which are in turn used to make lubricants, water repellents, resins, cosmetics, hair shampoos and toothpastes.

Source: World Mining Assoc.

Did You Know?

- The average train load of coal in Montana is assessed approximately $30,800 in federal, state, and local taxes.
- Coal provides employment for nearly 135,000 miners directly, with an additional 3.5 jobs created throughout the economy for each miner's job (electric utilities, transportation, manufacturing, etc.)

Glossary of Coal Terms

Anthracite - Called hard coal, highest rank of economically usable coal. Has a large heating value of 15,000 Btu; carbon content of 86-97%; and moisture content of less than 15%. Used primarily for space heating and generating electricity. Anthracite coal deposits total some 7 billion tons and are located primarily in Pennsylvania.

Btu - British thermal unit. A measure of the energy required to raise the temperature of one pound of water one degree Fahrenheit.

Bituminous - Called soft coal, most common type. Has a heating value of 10,500-15,500 Btu; carbon content of 45-86%; and moisture content usually less than 20%. Mined chiefly in Appalachia and Midwest. Reserves are widely scattered across the country and total some 238 billion tons.

Coal Resources - Total coal deposits, regardless of whether they can now be mined or recovered. The U.S. may have as much as 4 trillion tons of coal resources, according to the U.S. Geological Survey.

Coal Seam - A bed or stratum of coal; usually applied to large deposits of coal.

Coal Washing - The process of separating coal of various sizes, densities and shapes by allowing them to settle in a fluid.

Demonstrated Reserves - Coal deposits which are potentially mineable on an economic basis with existing technology. The U.S. Energy Information Administration estimates that there are about 494.1 billion tons of demonstrated reserves in the U.S.

Fossil Fuel - Any naturally occurring fuel of an organic nature, such as coal, crude oil and natural gas.

Gasification - Any of various processes by which coal is turned into low, medium, or high Btu gases.

Lignite - Brownish-black coal with generally high moisture content and lower heating value (4,000-8,300 Btu). Carbon content of 25-35%; moisture sometimes as high as 45%. Demonstrated reserves of 45 billion tons are mined primarily in Louisiana, Montana, North Dakota and Texas. Mostly used to make electricity at power plants located relatively close to the coal mine.

Liquefaction - Converting coal into synthetic liquid fuel, similar in nature to crude oil and/or refined products such as gasoline.

Magnetohydrodynamics - Also known as MHD. Coal and preheated air are fired in a low-resistance time burner at very high temperatures. Potassium salts are added, producing a gas of high conductivity. The gas is then passed through a magnetic field, producing electricity. This process is still in the research stage.

Mine-Mouth Plant - Commonly a steam-electric plant built close to a coal mine which delivers its electricity output to a distant point by transmission lines.

Recoverable Reserves - The amount of coal that can be recovered from the demonstrated reserve base. The recovery factor for surface mines is about 80-90% and for underground mines about 60%. Using these percentages, there are about 296.5 billion tons of recoverable reserves in the U.S., enough to last more than 250 years at current production levels.

Scrubber - Any of several forms of chemical-physical devices which operate to remove sulfur compounds formed during coal combustion. These devices combine the sulfur in gaseous emissions with another chemical medium to form inert "sludge," which must then be removed for disposal.

Slurry Pipeline - Pipeline for transporting viscous mixture of coal and liquid medium. Only one such line, a 273-mile system from Arizona to Nevada, is currently operating, although several others have been proposed. Water is the medium now is use, but experiments with oil, liquid methane or carbon dioxide show promise of increased efficiency and reduced environmental concerns in areas where water supplies are scarce. These pipelines might also be used for short-haul transport, such as from a port facility to a nearby power plant, reducing or eliminating the need for large stockpiles of coal.

Subbituminous - Dull black coal with heating value ranging between 8,300-11,500 Btu; carbon content, 35-45%; and moisture content, 20-30%. Demonstrated reserves total about 180 billion tons and are located in Montana, Wyoming, Colorado, New Mexico, Washington and Alaska. Primarily used for generating electricity and for space heating.

Tons - A short or net ton is equal to 2,000 pounds; a long ton or British ton is 2,240 pounds; a metric ton is approximately 2,205 pounds.

Unit Train - Long train of 60-150 hopper cars carrying only coal between a mine and a customer. A typical unit train can carry at least 10,000 tons of coal in a single shipment.